KHITROV, F.M.

"Transplantation des tissus dans les cas de pertes de substance isolees ou combinees et de cicatrices adherentes de la glotte du pharynx et de la partie cervicale de l'oesophage."

report presented at the 18th Congress of the Intl Society of surgery, Munich, 13-20 Sep '59.

KHITROV, F.M.

Reconstructive operations in extensive combined defects of the face. Khirurgiia 36 no.6:68-73 Je '60. (MIRA 13:12)
(FACE--SURGERY)

KHITROV, F. M.

The method of using a T-shaped Filatov flap in the repair of combined defects in the face. Acta chir. plast. 4 no.1:46-58 '62.

1. Central Institute of Traumatology and Orthopaedics, Moscow (USSR)

(FACE surg) (SKIN TRANSPLANTATION)

KHITROV, F.M.

Clinical features of extensive and combined defects in the face and their surgical repair in stages. Acta chir. plast. 4 no.2:133-143 '62.

1. Central Institute of Traumatology and Orthopaedics, Moscow (U.S.S.R.)
(FACE wds. & inj.) (SURGERY, PLASTIC)

KHITROV, F.M., prof.; SHUL'MAN, I.A., kand.med.nauk

Osteochondroma of the mandible. Stomatologiia 41 no.4:87-88 Jl-Ag '62. (MIRA 15:9)

1. Iz TSentral'noy klinicheskoy bol'nitsy (nach.-zasluzhennyy vrach RSFSR V.N.Zakharchenko) Ministerstva putey soobshcheniya SSSR.

(JAWS--TUMORS)

KHITROV, F.M., prof.; KALONTAROV, D.Ye., red.; KOKIN, N.M., tekhn. red.

[Defects and cicatrical atresia of the pharynx the cervical portion of the esophagus, the larynx, the trachea and the method for their removal]Defekty i rubtsovye zarashcheniia glotki, sheinogo otdela pishchevoda, gortani, trakhei i metodika ikh ustraneniia. Moskva, Medgiz, 1963. 214 p. (MIRA 16:3)
(NECK--SURGERY)

1. KHITROV, F.T.; GUDKOV, I.

2. USSR (600)

4. Agriculture

7. Raise the level of work of the professional organizations of the machine-tractor stations and of the state farms, F. Khitrov, I. Gudkov, Prof. soiuzy 8 no. 5, 1953.

9. Monthly List of Russian Accessions, Library of Congress, APR IL 1953, Unclassified.

KHITROV, P. T

Improve the work of trade-union organizations of Uzbekistan.
Sov.profsoiuzy 2 no.3:35-38 Mr '54. (MLRA 7:2)

1. Inspektor VTsSPS.
(Uzbekistan--Trade unions) (Trade unions--Uzbekistan)

KHITROV, F. T.

SHELAKHIN, P.I.; GUDKOV, I.N.; KHITROV, F.T.; NOVOSPASSKIY, V.V., red.; SHADRINA, N.D., tekhn.red.

[Collection of directives on the work of trade unions] Sbornik rukovodiashchikh materialov po organizatsionno-massovoi rabote profsoiuzov. [Moskva] Izd-vo VTsSPS Profizdat, 1957, 167 p. (MIRA 11:5)
(Trade unions)

KHITROV, G.

"Notes on the center of gravity of the water-collecting region."

KHIDROLOGIIA I METEOROLOGIIA, Sofiia, Bulgaria, No. 3, 1959.

Monthly List of East European Accessions Index (EEAI), The Library of Congress, Volume 8, No. 8, August 1959.

Unclassified

KHITROV, I.N.

MAKSIMOV, Vasiliy Mikhaylovich, dotsent, kand.geologo-miner.nauk; ASATUR, K.G., dotsent, kand.tekhn.nauk; DAVIDOVICH, V.I., dotsent, kand. tekhn.nauk; ALBUL, S.P., kand.geologo-miner.nauk; PAUKER, N.G., inzh.-gidrogeolog; OSTROUMOV, B.P., gidrotekhnik; ZAYTSEV, I.K., doktor geologo-miner.nauk; TOLSTIKHIN, N.I., prof., doktor geologo-mineral.nauk; REZNIKOV, A.A., kand.khim.nauk, starshiy nauchnyy sotrudnik; MERSHALOV, A.F., assistent; VOROTYNTSEV, V.T., dotsent, kand.tekhn.nauk; MARKOV, I.A., dotsent, kand.geologo-miner.nauk; KERKIS, Ye.Ye., dotsent, kand.geologo-miner.nauk; KHITROV, I.N., inzh.-geolog; BOROVITSKIY, V.P., kand.geologo-miner.nauk; RAVDONIKAS, O.V., kand.geologo-miner.nauk; ONIN, N.M., kand.geologo-miner.nauk; BASKOV, Ye.A., inzh.-gidrogeolog; NOVOZHILOV, V.N., dotsent, kand. geologo-miner.nauk; PEKEL'NYY, I.S., inzh.-gidrogeolog; NEVEL'SHTEYN, Yu.G., inzh.-gidrogeolog; BOSKIS, S.G., inzh.-gidrotekhnik; NIKIFOROV, Ye.M., inzh.-gidrogeolog; GATAL'SKIY, M.A., prof., doktor geologo-miner.nauk, nauchnyy red.; DOLMATOV, P.S., vedushchiy red.; GEN-NAD'YEVA, I.M., tekhn.red.

[Hydrologist's handbook] Spravochnoe rukovodstvo gidrogeologa. Leningrad, Gos.nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry, Leningr.otd-nie, 1959. 836 p. (MIRA 12:4)

1. Vsesoyuznyy geologicheskiy nauchno-issledovatel'skiy institut (for Reznikov).

(Hydrology)

KHITROV, L.M.; ZADOROZHNYY, I.K.

Fractionation of oxygen isotopes in soil. Pochvovedenie no.1:5-14 Ja '60. (MIRA 13:5)

1. Institut geokhimii i analiticheskoy khimii imeni V.I. Vernadskogo AN SSSR.
(Gases in soils) (Oxygen--Isotopes)

BALASHOV, Yu.A.; KHITROV, L.M.

Distribution of rare earth metals in waters of the Indian Ocean. Geokhimiia no.9:796-806 '61. (MIRA 15:2)

1. V.I. Vernadsky Institute of Geochemistry and Analytical Chemistry, Academy of Sciences U.S.S.R., Moscow.
(Indian Ocean--Rare earth metals)

S/213/62/002/002/001/001
A052/A126

AUTHORS: Khitrov, L. M., Kotlyarov, K. A.

TITLE: Deep-water gamma-radiometer and radioactivity measurement of deep water layers of the Indian Ocean

PERIODICAL: Okeanologiya, no. 2, 1962, 334 - 345

TEXT: The paper describes the deep-water radiometer PAГ-1 (RAG-1) and gives some results of radioactivity measurements in great depths of the Indian Ocean. The work was carried out in 1959 - 1960 in Moscow and on board the expedition ship "Vityaz'" during her 31st cruise. A direct and speedy radioactivity measurement in depths over 1,000 m is of considerable interest for clarifying both the character of radioactivity propagation in the ocean and a number of hydrological problems (boundaries and direction of streams, water-mass origin, etc.). It assumes a special importance in connection with the problem of the nuclear fallout disposal, since a proposal has been made to bury fallout in maximum ocean depth. There are two contrasting opinions. Soviet scientists, on the basis of a number of hydrochemical and hydrological data, have arrived at a con-

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Deep-water gamma-radiometer and .....

clusion on a speedy exchange of water in trenches and on the presence of noticeable streams along deep-water troughs which will lead to a speedy transfer of radioactive matter into other regions. Under such conditions the burying and conservation of fallout becomes impossible. American scientists are of a different opinion, and a direct study of the radio-isotope propagation can provide a definite solution of this problem. Besides radiochemical methods of studying the radioactivity distribution in sea water, direct measurements of elevated radioactivity have been attempted. The design principle of the described RAG-1 radiometer consists in accommodating all recording equipment, along with the pickup, in one deep-water unit making the latter self-contained. The lowering of the radiometer can be realized by means of the usual hydrological winch of Okean-type on a wire rope. The shortcomings of such a device (the impossibility to control the performance in the depth and the delay in receiving information until the radiometer is raised are offset by its obvious advantages (no depth limits, tightness, simplified operation). The RAG-1 radiometer consists of the following elements: 1) scintillation crystal (NaJ, 30 x 10 mm); 2) photoelectronic multiplier ФЭУ -29

Card 2/4

(FEU-29) with a two-way emitter repeater built on diffusion transistors П-402 (P-402); 3) amplifier and discriminator; the amplifier is built on transistors of different types of conductivity; for the amplification of signals of negative and positive polarity germanium triodes П-15 (P-15) (p-n-p) and silicon triodes П-103 (P-103) (n-p-n) respectively are used. The first two cascades before the diode Д-2Е (D-2Ye) discriminator have an amplification coefficient of about 100; after the discriminator a two--cascade amplifier follows with an amplification coefficient of the order of 800. The output pulse is supplied to a normalizer built on a cold thyratron МТХ-90 (MTKh-90); 4) interconversion and commutating device; the interconversion device makes it possible to measure the ocean radioactivity in a wide activity zone also to calibrate the radiometer with a reference source of a relatively high activity. The device is built on MTKh-90 tubes; 5) counter unit; it consists of 10 counters СБ-100М (SB-100M) connected to the interconversion device in a certain sequence by means of a timer consisting of an automobile clock, a polarized relay and a step finder ШИ-11 (ShI-11); 6) feed unit consisting of 4 dry accumulators securing a 2,100 hour operation. The spread of indications due to

Deep-water gamma-radiometer and .....

both statistical and instrument errors is 10 pulses per minute. The threshold pickup is $2 \cdot 10^{-10}$ curie. The gamma background measurements carried out in the central and northern parts of the Indian Ocean did not detect a radioactivity level exceeding the natural one by more than a factor of 2 - 3. There are 4 figures and 4 tables.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. Vernadskogo (Institute of chemistry and analytical chemistry im. V. I. Vernadskiy)

SUBMITTED: November 16, 1961

Card 4/4

BELYAYEV, Yu.; KHITROV, L.

Chemical analysis in a minute. Nauka i zhizn' 29 no.6:60 Je '62.
(MIRA 15:10)

1. Nauchnyye sotrudniki Instituta geokhimii i analiticheskoy khimii imeni V.I. Vernadskogo AN SSSR.
(Spectrum analysis)

KHITROV, L.M.; KOTLYAROV, K.A.

Use of the method of flame photometry in marine studies; marine flame photometer. Okeanologiia 3 no.2:315-323 '63. (MIRA 16:4)

1. Institut geokhimii i analiticheskoy khimii imeni V.I. Vernadskogo AN SSSR.

(Photometry)
(Oceanographic research—Equipment and supplies)

BELYAYEV, Yu.I.; KHITROV, L.M.

Use of quantometers for the analysis of geological materials.
Zhur. anal. khim. 18 no.3:310-317 Mr'63. (MIRA 17:5)

1. Institut geokhimii i analiticheskoy khimii imeni Vernadskogo, AN SSSR, Moskva.

BARANOV, V.I., doktor fiz.-matem. nauk, otv. red.; KHITROV, L.M., red.

[Radioactive contamination of seas and oceans] Radioaktivnaia zagriaznennost' morei i okeanov. Moskva, Izd-vo "Nauka," 1964. 223 p. (MIRA 17:5)

1. Akademiya nauk SSSR. Okeanograficheskaya komissiya. 2. Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo AN SSSR (for Baranov, Khitrov).

KOTLYAROV, K.A.; KHITROV, L.M.

Measurement of minute radioactivity values under field conditions. Okeanologiia 4 no.2:213-222 '64. (MIRA 17:5)

1. Institut geokhimii i analiticheskoy khimii imeni Vernadskogo AN SSSR.

KHITROV, L.M.; KOTLYAROV, K.A.

The marine flame photometer and its use. Trudy Inst. okean 75: 135-140 '64. (MIRA 17:11)

BELYAYEV, Yu.I.; KHITROV, L.M.

Use of quantometers in oceanographic research. Trudy Inst. okean. 75:147-156 '64. (MIRA 17:11)

KHITROV, M. V.

USSR/ Engineering - Factory devices

Card 1/1 Pub. 103 - 12/20

Authors : Moguzov, V. I.; Khitrov, M. V.; and Chaman, V. S.

Title : Counting devices for small light-weight parts

Periodical : Stan. i instr. 26/3, page 32, Mar 1955

Abstract : Announcement is made by the Ministry of the Machine and Instrument Construction Industry of the USSR about the design of two counters (FS-K1 and FS-K2) suitable for counting of small, fragile and light-weight objects during the manufacturing processes. The first counter (FS-K1) is described as a photoelectric contactless type, the second (FS-K2) has a more complex electrical scheme but is more universal than the FS-K1. Diagrams.

Institution : .....

Submitted : .....

KHITROV, M.V.; BONDARENKO, D.A.

Measuring heads used for checking blind holes. Stan. i instr. 28 no.5:25-26 My '57. (MLRA 10:6)

(Electric instruments)

KHITROV, N.I.; SLUTSKIY, A.B.; ARSEN'YEVA, R.V.

Synthesis and characteristics of coesite, the stable modification of silica at high pressures [with summary in English]. Geokhimiia no.8:666-672 '57. (MIRA 11:2)

1.Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo AN SSSR, Moskva.
(Silica) (Coesite)

KHITROV, N.I., otv. red.; TARASOV, L.S., red.

[Problems of geochmistry; festschrift devoted to the 70th birthday of Academician A.P.Vinogradov] Problemy geokhimii; iubileinyi sbornik, posviashchennyi semidesiatiletiiu akademika A.P.Vinogradova. Moskva, Nauka, 1965. 689 p.
(MIRA 18:8)

1. Akademiya nauk SSSR. Institut geokhimii i analiticheskoy khimii. 2. Chlen-korrespondent AN SSSR (for Khitrov).

VOZNESENSKIY, B.B.; KHITROV, N.K.

Cholinergic reactions and sympathoadrenal activity in experimental hyperthyroidism in white rats. Biul. eksp. biol. i med. 55 no.4: 61-65 Ap '63. (MIRA 17:10)

1. Iz kafedry patologicheskoy fiziologii (zav. - prof. S.M. Pavlenko) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova. Predstavlena deystvitel'nym chlenom AMN SSSR V.V. Zakusovym.

KHITROV, S.K.

Scientist, physician, pedagogue and civic worker. Lab. delo. no.1:63-64 '65. (MIRA 18:1)

KHITROV, V. A.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
General and Physical Chemistry

Chem

Temperatures of melting points and polymorphic transitions of lithium, sodium, and potassium hydroxides. V. A. Khitrov, K. N. Khitrova, and V. F. Khmel'kov (State Pedagogic Inst., Voronezh). *Zhur. Obshchei Khim.* 23, 1630–2(1953).—Temp. *vs.* time curves for hydroxides of Li, Na, and K give their resp. m. ps. as 462, 322, and 406°. Polymorphism of LiOH is established for the 1st time; transition of α to β is at 413°. The NaOH transition is at 298°; the endothermic effect of polymorphic transformation is greater than for melting. Contrary to the findings of Reshetnikov, *et al.* (*C.A.* 47, 394c) only one modification of KOH is found; transition of α to β is at 240°.

I. Bencowitz

KHITROVA, N.N.; KHITROV, V.A.

Complexing in the system: $NaNO_3$ - $CO(NH_2)_2$ - H_2O. Izv.Sekt.fiz.-khim.anal. 27:328-336 '56. (MLRA 9:9)

1.Voronezhskiy pedagogicheskiy institut.
(Compounds, Complex) (Sodium nitrate) (Urea)

KHITROV, V. A.

66560

SOV/ 1-5-15-57/58

Translation From: Referativnyy zhurnal. Khimiya. 1957, Nr 15, p 269 (USSR)

AUTHOR: Khitrov, V.A.

TITLE: On the Thermographic Method of Investigating the Corrosion of Metals

PERIODICAL: V sb.: Metody issledovaniya ingibitorov korrozii metallov (Vses. sov. nauchno-tekhn. o-v. Nr 7). Moscow, 1958, pp 62 - 67

ABSTRACT: The method of measuring the corrosion rate of metals by determining the heat effect consists in immersing two Al samples in similar vessels with equal volumes of distillate. The hot junctions of an ordinary and a differential thermocouple are placed into these vessels at an equal depth. The coincidence of the spots of the mirror galvanometers of both thermocouples and their shift parallel to the zero line of the recording proves the absence of heat effects. After replacing the water in one of the vessels by a HCl solution (1 n or 2 n) the ordinary and differential readings diverge, the stronger the higher the concentration of the acid. For increasing the sensitivity of the method semiconductor resistance

Card 1/2

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66560

SOV/ 1-5-15-57/58

On the Thermographic Method of Investigating the Corrosion of Metals

thermometers (thermistors) are used. For conducting the measurements a special device has been designed which provides for a considerable deviation of the differential curve. The advantage of the method is the possibility of studying the kinetics of the corrosion process on a sole sample.

A. Ismet

4

Card 2/2

MALINOVSKI, I.; KHITOV, V.

Selective adsorption of sulfur-containing components of gelatin to silver bromide. Izv Inst khim BAN 7:271-280 '60.
(KEAI 10:9)

(Sulfur) (Gelatin) (Silver bromide)

S/081/61/000/024/038/086
B117/B147

AUTHOR: Khitrov, V. A.

TITLE: The problem of the effect of temperature on corrosion resistance and electrode potentials of metals in acid media

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24, 1961, 306, abstract 24I199 (Izv. Voronezhsk. gos. ped. in-ta, v. 29, 1960, 5 - 44)

TEXT: The effect of temperature on the corrosion resistance and electrode potentials of a series of metals has been studied: steel 08, Ni, Al, Fe, Armco, electrolytic, and chemically pure Zn, Sn, Pb, Cd, and Cu. Experiments made in non-oxidizing acids at different temperatures have shown that the corrosion rate in 1 N HCl and H_2SO_4 solutions increases with rising temperature and usually obeys the law of van't Hoff and Arrhenius in the range of 0 - 80°C. Above 60°C, however, the corrosion rate increases with rising temperature much more than would follow from the Arrhenius equation. This is due to intensive destruction of the oxide

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The problem of the effect ...

film on Al in HCl solution. In concentrated H_2SO_4, the dependence of the corrosion rate on the reciprocal absolute temperature is expressed by a curve with a maximum at~70°C, owing to passivation of the Al surface. When the temperature is raised, both the corrosion rate and the rate of diffusion processes increase although the latter remains lower. This will ultimately lead to diffusion control. Corrosion processes slowed down at low temperatures are accelerated with time at higher temperatures. This is related to the drop of the H_2 overvoltage, to the decrease in polarization and in the viscosity of the solution, and to the destruction of protective films. Addition of inhibitors to acid solutions usually improves the potentials of metals at all temperatures. The steady potential of all the metals considered is, however, shifted to negative values by an increase in temperature. This is due to the decrease in stability of the protective film or to the absolute enlargement of the metal surface free from inhibitors, which is related to the formation of this surface under the action of corrosion. Addition of inhibitors at elevated temperatures diminishes the decrease in cathodic and anodic polarization. This

Card 2/3

S/081/61/000/024/038/086
B117/B147

The problem of the effect ...

is the result of the formation of a protective film on the steel surface which prevents corrosion. The most effective inhibitors in this respect are such that form stable films on the metal surface (arsenates and iodides). [Abstracter's note: Complete translation.]

Card 3/3

On the effect of temperature ...

polarized even at high D and at low temperatures. Chemically pure Zn is polarized particularly noticeably at low temperatures (0 and 20°C). The cathode polarization at all temperatures exceeds the anode polarization in both acids. The corrosion of both chemically pure and electrolytic Zn is controlled by the rate of the cathode reaction of H^+-ion discharge. However, as the temperature increases and as the contamination of the metal surface increases, the access of the acid to the Zn becomes more difficult, and the hydrogen overpotential is reduced, leading to an intensification of the role of the factors determining the value of the limiting diffusion current. There are 10 references.

V. Tarisova

[Abstracter's note: Complete translation]

Card 2/2

S/137/62/000/001/178/237
A006/A101

AUTHORS: Shabalova, N. I., Khitrov, V. A.

TITLE: On the kinetics of self-diffusion processes of iron, nickel, aluminum, and zinc in hydrochloric and sulfuric acids at various temperatures

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 80, abstract 1I567 ("Izv. Voronezhsk. gos. ped. in-ta", 1960, v. 29, 55 - 77)

TEXT: The authors studied kinetics of self-diffusion of Fe, Ni, Al and Zn in 1 n. HCl and H_2SO_4 solutions. At low temperatures (20, 40°C), the self-diffusion process of the metals investigated was retarded in time (with the exception of Zn in both acids and Fe in 1 n. HCl at 40°C after holding the specimen in the solution for 3 hours). The diffusion of Al in 1 n. H_2SO_4 at 60°C is also retarded in time. At higher temperatures (60, 80°C) the self-diffusion process is accelerated (with the exception of Al in 1 n. H_2SO_4 at 60°C). Corrosion-time and corrosion rate - time curves, plotted for the diffusion of Fe in 1 n. H_2SO_4 at 60°C, Fe in 1 n. HCl at 40°C, and Al in 1 n. H_2SO_4 at 80°C, are complex curves showing a retarded process at the beginning, and a subsequent acceleration. Causes are mentioned which promote retardation or acceleration in time of the

Card 1/2

On the kinetics of... S/137/62/000/001/178/237
A006/A101

self-diffusion processes of metals in H_2SO_4 and HCl solutions. There are 11 references.

Author's summary

[Abstracter's note: Complete translation]

Card 2/2

S/137/62/000/001/189/237
A006/A101

AUTHORS: Khitrov, V. A., Khmel'kov, V. F.

TITLE: Corrosion resistance of low carbon steel in inhibited sulfuric acid at temperatures from 0 to 80°C

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 84, abstract 1I595 ("Izv. Voronezhsk. gos. ped. in-ta", 1960, v. 29, 83 - 90)

TEXT: The authors studied the inhibiting effect of urotropine and formaldehyde on the corrosion rate of low carbon steel in 1 and 7 n. H_2SO_4 solutions at temperatures from 0 to 80°C, by 20 minute intervals. In the temperature range investigated, both substances inhibit the corrosion rate to some degree. The optimum concentrations of both inhibitors are equal to 0.1% for all temperatures and concentrations of H_2SO_4. A higher amount of formaldehyde and urotropine admixtures above this quantity, entails an increased self-diffusion rate of the steel. In the temperature range investigated, the form of straight lines "logarithms of the corrosion rate-versus inverse absolute temperature", indicates a weaker efficiency of both inhibitors at higher temperature. They can therefore not be considered as high-temperature inhibitors. The magnitude of the effec-

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Corrosion resistance of low carbon steel...

tive activation energy and of the temperature factors of steel corrosion, and also the form of the function logarithm of the corrosion rate versus inverse absolute temperature, permit the conclusion that both inhibitors are kept on the metal surface on account of the physical adsorption forces. It can also be stated that the corrosion rate at all temperatures is controlled by the rate of the chemical processes, and that the inhibitor films are continuous. The inhibiting effect of urotropine and formaldehyde is relatively low; it decreases with higher temperatures. There are 8 references.

Author's summary

[Abstracter's note: Complete translation]

Card 2/2

18.8310

33846
S/137/62/000/001/191/237
A006/A101

AUTHORS: Khitrov, V. A., Khmel'kov, V. F.

TITLE: The effect of temperature on corrosion resistance of low-carbon steel in inhibited hydrochloric acid solutions

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 85, abstract 1I597 ("Izv. Voronezhsk. gos. ped. in-ta", 1960, v. 29, 91 - 99)

TEXT: The authors investigated the effect of temperature on the self-diffusion rate of low carbon steel in 1 and 7 n. HCl solutions containing urotropine and formaldehyde. Optimum concentrations of both inhibitors, when the corrosion rate is most efficiently retarded, are determined. For urotropine and formaldehyde this value is about 1%. The increased corrosion rate of steel with temperature is explained by the non-stability of both inhibitors investigated under the experimental conditions, and by the desorption of their molecules from the metal surface at higher temperatures. The authors established the linear form of the function "logarithm of the corrosion rate versus inverse absolute temperature", and the parallel course of the straight lines in both the inhibited and pure HCl solutions. With a higher H_2 concentration the corrosion rate of

Card 1/2

33846
S/137/62/000/001/191/237
A006/A101

The effect of temperature on...

steel increases at all the temperatures. The dependence of the logarithm of the corrosion rate on the normality of the acid in the investigated concentration range is a linear one. The inhibiting effect of urotropine and formaldehyde is somewhat reduced with temperature and increases considerably with the concentration of the acid. The magnitude of the effective activation energy and the temperature factors, and the course of the straight lines expressing the corrosion rate logarithm as a function of inverse absolute temperature, lead to the conclusion that both inhibitors retard steel corrosion on account of the formation of a film, which is kept on the metal surface by forces of physical adsorption. It can also be stated that the corrosion rate of steel is controlled at all temperatures by the rate of the chemical reaction. The inhibitor film on the metal is not continuous. There are 9 references.

Authbr's summary

[Abstracter's note: Complete translation]

Card 2/2

S/137/62/000/001/190/237
A006/A101

AUTHORS: Khitrov, V. A.; Dugin, N. A.

TITLE: Electrode potentials of steel in inhibited sulfuric acid solutions at various temperatures

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 84 - 85, abstract 1I596 ("Izv. Voronezhsk. gos. ped. in-ta", 1960, v. 29, 101 - 111)

TEXT: The authors studied the effect of temperature and inhibitors (urotropine and formaldehyde) on the electrode potentials of low carbon steel in 1 and 7 n. H_2SO_4 solutions. The electrode potentials of steel were in all cases refined. The refining was particularly high within the initial 15 - 20 minutes; subsequently the potentials acquired practically a stationary value. A temperature increase in non-inhibited H_2SO_4 solutions had a very low effect on the magnitude of the electrode potential of the steel. At 60 - 80°C the potential was somewhat shifted to the positive side. The introduction of inhibitors refined the electrode potentials of steel at all the temperatures. At a higher temperature of the inhibited H_2SO_4 solutions the potential of the steel electrode is shifted toward the negative side. If the H_2SO_4 concentration is increased from

Card 1/2

S/137/62/000/001/190/237
A006/A101

Electrode potentials of...

1 to 7 n., the steel potential is depurified in both pure and inhibited solutions. Initial (one-minute) potentials and those which changed in time, (150 minutes after immersion), change in the majority of cases according to regularities established for stationary (15 - 30minutes) potentials. There are 21 references.

Author's summary

[Abstracter's note: Complete translation]

Card 2/2

33849

S/137/62/000/001/196/237
A006/A101

18.8310

AUTHORS: Khitrov, V. A., Khmel'kov, V. F.

TITLE: Sodium arsenate as a corrosion inhibitor of steel in aqueous solutions of sulfuric and hydrochloric acids

PERIODICAL: Referatuvnyy zhurnal, Metallurgiya, no. 1, 1962, 85, abstract 1I602 ("Izv. Voronezhsk. gos. ped. in-ta", 1960, v. 29, 123-130)

TEXT: The authors investigated the effect of temperature on the corrosion resistance of low carbon steel in 1 and 7 n. H_2SO_4 and HCl solutions, inhibited with Na arsenate (I). A higher concentration of I entails a systematic decrease of the steel corrosion rate in H_2SO_4 and HCl at all the investigated temperatures. The temperature increase causes some increase of the absolute corrosion rate of steel; however, the protective and inhibiting effect of I increases with the temperature and concentration of the acids. Low values of temperature corrosion factors, and a considerable reduction of the effective activation energy, which is connected with the addition of I into the solutions of the acids, indicate the diffusion control of the corrosion rate. I is a sufficiently effective inhibitor of steel corrosion in H_2SO_4 at elevated temperatures. [Abstracter's note: Complete translation] Authors' summary

Card 1/1

S/137/62/000/001/179/237
A006/A101

AUTHORS: Khitrov, V. A., Zadorozhnyy, V. P.

TITLE: Corrosion kinetics of steel in sulfuric and hydrochloric acids at various temperatures

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 80, abstract 1I568 ("Izv. Voronezhsk. gos. ped. in-ta", 1960, v. 29, 131 - 140)

TEXT: The authors studied kinetics of self-diffusion processes of low carbon steel in 1 and 7 n. H_2SO_4 and HCl solutions at 0, 20, 40, 60 and 80°C. At low temperatures the corrosion process is retarded in time. At higher temperatures it is accelerated. The same effect is exerted by a higher concentration of the acid. Factors are mentioned which predetermine acceleration or inhibition in time of the corrosion of steel in H_2SO_4 and HCl solution. There are 15 references.

Author's summary

[Abstracter's note: Complete translation]

Card 1/1

S/081/61/000/023/029/061
B138/B101

AUTHORS: Zadorozhnyy, V. P., Khitrov, V. A.

TITLE: Rate of corrosion of steel in acid media containing inhibitors

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 23, 1961, 290, abstract 23I270 (Izv. Voronezhsk. gos. ped. in-ta, v. 29, 1960, 141 - 149)

TEXT: An investigation has been made of the kinetics of corrosion processes in mild steel in 1 and 7 N solutions of H_2SO_4 and HCl at temperatures of 20 and 60°C. The solutions contained inhibitors - urotropin, formaldehyde, thiocarbamide, Na_3AsO_4. Practically no change was found in the kinetic laws governing the dissolution of steel in acids. The influence of temperature, composition, and acid concentration on the time dependence of corrosion and of the rate of corrosion in steel is also shown. [Abstracter's note: Complete translation.]

Card 1/1

S/137/62/000/001/184/237
A006/A101

AUTHORS: Sadovskaya, Yu.I., Khitrov, V.A.

TITLE: On the effect of temperature on the corrosion resistance of aluminum in sulfuric acid solutions

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 1, 1961, 82, abstract 1I577 ("Izv. Voronezhsk. gos. ped. in-ta", 1960, v. 29, 167 - 173)

TEXT: The authors studied the effect of temperature on the corrosion resistance of commercial Al in H_2SO_4 solutions of different concentrations (from 1 to 35 n.). The rate of Al corrosion increases with higher temperatures. An increase in H_2SO_4 concentration is accompanied by a higher corrosion rate of Al only to a certain limit (28 n. H_2SO_4); a further increase of the acid concentration caused a considerable decrease of the corrosion rate and the beginning of a passive state of Al. Experimental data obtained, and calculated values of the effective activation energy and the temperature factors, lead to the conclusion that the corrosion rate of Al in H_2SO_4 solutions is controlled by the chemical reaction rate, and that the temperature effect obeys the Arrhenius equation. However, in concentrated H_2SO_4 (35 n.) the beginning of the passive state entails

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On the effect of temperature ...

a deviation from this dependence and the transition to diffusion control. Experimental data are interpreted on the basis of N.D. Tomashov's concepts of passivity. There are 11 references.

The authors' summary

[Abstracter's note: Complete translation]

Card 2/2

S/081/61/000/023/027/061
B138/B101

AUTHOR: Khitrov, V. A.

TITLE: Corrosion behavior of steel, copper, and aluminum in fused salts and caustic alkalis

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 23, 1961, 288, abstract 23I249 (Izv. Voronezhsk. gos. ped. in-ta, v. 29, 1960, 175 - 188)

TEXT: The rate of corrosion of these metals is found to diminish with time, with the exception of Cu in a fusion of NaOH. In an $NaNO_3$ fusion Al is not subject to corrosion. Also investigated were the effect of aeration of the fusion, heat and mechanical treatment of the surface, and of Cl^- on the corrosion rate of Cu in an $NaNO_3$ fusion. It is noted that O_2 in solution acts as a depolarizer in the process of corrosion in the fusions. It is therefore recommended that coolants should be insulated

Card 1/2

S/081/61/000/023/027/061
B138/B101

Corrosion behavior of steel, copper,...

from environmental air. [Abstracter's note: Complete translation.]

Card 2/2

25655
S/080/60/033/012/009/024
D209/D305

18.8310

AUTHORS: Khitrov, V.A., and Dugin, N.A.

TITLE: The mechanism of the corrosion inhibiting action of sodium arsenate in acid media

PERIODICAL: Zhurnal prikladnoy khimii, v. 33, no. 12, 1960, 2708 - 2712

TEXT: In the present work, the authors submit their findings on the mechanism of the inhibiting action, utilizing information obtained from their previous experiments and the results of additional investigations. It had been found earlier that Na_3AsO_4 effectively inhibits corrosion of low carbon steel in hydrochloric and particularly in sulphuric acids and the effect is stronger as temperature increases. It is interesting to note that the introduction of Na_3AsO_4 into these acids brings about the reduction of effective activation energy and temperature coefficient of the corro-

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The mechanism of the ...

sion process. The relation of the log of rate of corrosion and the reciprocal of absolute temperature shows that Na_3AsO_4 in 1N H_2SO_4 or HCl is also effective at higher temperatures. The curves of cathodic and anodic polarization of steel electrode plotted for H_2SO_4 and HCl solutions containing 0.5 % Na_3AsO_4 at temperatures of 0, 20, 40, 60 and 80°C show that the introduction of arsenate retards both these processes and particularly anodic polarization which is shown by the improvement of stationary potential. Temperature increase lowers anodic and cathodic polarization of electrodes. However, in a H_2SO_4 solution and IN HCl the temperature effect is less pronounced; only at 80°C is the electrode polarized to a considerable extent. For a 7N HCl electrode, polarization is strongly reduced at 60 and 80°C. The experimental results, especially those of polarization measurements show that the retarding action at Na_3AsO_4 is difficult to explain in terms of pure arsenic deposition on the cathode and hydrogen over-voltage increase. To explain the mecha-

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nism of the inhibiting action of Na_3AsO_4 the author conducted x-ray examinations and utilized electron microscopy using a steel specimen previously kept in H_2SO_4 and HCl solutions containing 1 % Na_3AsO_4. X-ray photographs taken according to the method of B.A. Mishin (Ref. 14: ZL. 5, 642, 1958) which permits exposition of films up to 0.1 micron thick did not show any additional lines as compared with lines characteristic for steel. Electron photography, conducted in the laboratory im. D.V. Ignatov, Institut metallurgii AN SSSR (Institute of Metallurgy, AS USSR) involved eight specimens, different temperatures and acid composition. On seven specimens, the presence of arsenic acid salt of composition $Fe_3(AsO_4)_2\ 6H_2O$ was established. The corrosion retarding action of such innibitors as sodium arsenate, dibenzylsulphide, iodides and bromides in H_2SO_4 solution and nitrogen-containing bases in HCl solutions may be explained by the irreversible absorption of their ions by the surface atoms of the metal. As a result of chemosorp-

Card 3/5

The mechanism of the ...

tional reaction of AsO_4''' ions with Fe atoms a fine film of the reaction product is formed on the metal surface thus passivating it. In the case of Na_3AsO_4 the chemosorbed film of $Fe_3(AsO_4)_2\ 6H_2O$ covers a considerable area of metal but is not uniform. Contact between acid and metal is limited and the kinetics of the corrosion process is controlled to a high degree by the diffusion of acid ions towards metal which explains the low values of the temperature coefficients in the process. It follows that the sodium arsenate inhibiting action is considerably lower in HCl than H_2SO_4 and its effectiveness decreases as the concentration of HCl and temperature increase. This may be explained by the ability of Cl ions to enter exchange adsorption with passivating ions AsO_4'''. Obviously this exchange is more intense as temperature and concentration of the agressor-ions are increased. It must also be mentioned that in H_2SO_4 solutions, the iron surface becomes positively charged and in HCl - negatively. The adsorption of AsO_4''' ions by sur-

Card 4/5

The mechanism of the ...

face Fe atoms will, therefore, be more difficult than in the H_2SO_4 solutions. There are 4 figures, and 18 references: 11 Soviet-bloc and 7 non-Soviet-bloc. The references to the 4 most recent English-language publications read as follows: H.C. Gatos, Corrosion, 12, 7, 32, 1956; C. King, F. Rau, J. Electroch. Soc., 103, 6, 331, 1956; K. Kraemer, Iron Trad. Ber. 14, 841, 1928; O. Weths, Trans. Am. Electrochem. Soc. 67, 259, 1935; 81, 511, 1942.

ASSOCIATION: Voronezhskiy gosudarstvennyy pedogogicheskiy institut (Voronezh State Pedagogical Institute)

SUBMITTED: April 26, 1960

Card 5/5

S/020/60/133/04/28/031
B004/B056

AUTHORS: Khitrov, V. A., Shatalova, V. I., Smol'yaninov, I. S., Sadovskaya, Yu. I.

TITLE: The Problem of the Influence of Temperature on the Rate of Corrosion of Metals in Acid Media

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 4, pp. 886 - 888

TEXT: The authors investigated the influence exerted by temperature on the rate of corrosion of Armco iron, nickel, zinc, and cadmium in 1 N H_2SO_4 and 1 N HCl, and found a linear course for the function log K = f(1/T) according to the Arrhenius equation (Fig. 1). For the corrosion of aluminum in 1 N HCl, this function is, however, no longer linear; corrosion increases with rising temperature more quickly than would correspond to the Arrhenius equation (Fig. 2). This is explained by the destruction of the oxide layer of Al. In the case of commercial aluminum of the type Al-2, it was observed in 35 N H_2SO_4 that the

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corrosion rate obeys the Arrhenius equation up to 50 - 60°C, attains a maximum value at 70°C, after which it decreases (Fig. 3). This is explained by increasing passivation of the Al. A similar behavior is shown by copper in 1 N HCl and 1 N H_2SO_4 (Fig. 3). Slight deviations from linearity are found in zinc and lead in both acids (Fig. 4). This is assumed to be caused by the fact that the rate of the diffusion processes increases more slowly with rising temperature than the rate of chemical processes. The authors mention a paper by N. D. Tomashov and T. V. Matveyeva (Ref. 7). There are 4 figures and 8 references : 7 Soviet and 1 British.

ASSOCIATION: Voronezhskiy gosudarstvennyy pedagogicheskiy institut (Voronezh State Pedagogical Institute)

PRESENTED: March 10, 1960 by V. I. Spitsyn, Academician

SUBMITTED: March 9, 1960

27392
S/153/61/004/003/002/008
E073/E535

18.8300 4016 1418 2808

AUTHORS: Shatolova, V.I. and Khitrov, V. A.

TITLE: On the influence of the temperature on the resistance to corrosion and the electrode potentials of metals in acidic media. I. Iron.

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1961, Vol.4, No.3, pp.404-408

TEXT: The authors carried out systematic investigations on the influence of the temperature on the resistance to corrosion and the electrode potentials of Armco iron (C 0.028%, Si 0.14%, P 0.11%, Mn 0.15%, S 0.01%) in solutions of sulphuric and hydrochloric acid. Specimens 22 x 20 x 2 mm were investigated. These were rubbed down with emery paper of varying coarseness, degreased in a hot 10% alkali solution, washed in water, dried in alcohol, ether and were then weighed. The quantity of electrolyte used was 150 ml; the temperature was maintained, by means of a water thermostat, with an accuracy of $\pm$0.1°C. The investigations were carried out simultaneously on at least ten specimens in the

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temperature range 0 to 80°C with temperature steps of 20°C. For the electrochemical investigations 10 x 10 mm electrodes were used, which were cladded with polystyrene in such a way that only one surface was actively in operation. The surface preparation was the same as for the weight tests. The potentials were measured by means of a potentiometer, using a compensation method. The potential was determined relative to a hydrogen electrode, using as an electrolyte an acid of 1 N. The measurements were made in an electrolyte which was still, in the presence of air. The curves of cathode and anode polarizations were recorded simultaneously, the anode and cathode spaces being sub-divided by a glass filter. D.C. from anode batteries was used for polarization, the density of the polarization current varied between 10^{-2} and 10^{-6} A/cm^2. The current was measured by a millivoltmeter; the entire instrument was thermostated. It was found that the speed of corrosion of Armco iron increases continuously with temperature, both in the sulphuric acid as well as in the hydrochloric acid. At 20 to 25°C corrosion is more intensive in sulphuric acid, whilst at higher temperatures corrosion is more intensive in the hydrochloric acid.

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Fig.1 shows the dependence of the logarithm of the corrosion speed of Armco iron on the reciprocal of the absolute temperature; 1 - in 1 N H_2SO_4, 2 - in 1 N HCl. The temperature coefficients of the corrosion decreased with increasing temperature. This was to be expected since, according to the Arrhenius equation, these decrease with increasing temperature. It was found that on the whole the speed of corrosion of Armco iron obeys the Arrhenius equation in the investigated temperature range. The values of the temperature coefficients, which are tabulated, allow the conclusion that the speed of corrosion of iron is governed by the speed of the chemical reaction. The electrode potentials were also investigated. Fig.2 gives the dependence of the electrode potential (normal hydrogen equivalent) on time (min) at various temperatures (a - 1 N solution of H_2SO_4, б - in 1 N solution of HCl). Fig.3 gives the influence of the temperature on the steady state potential of Armco iron: 1 - in 1 N solution of H_2SO_4, 2 - in 1 N solution of HCl. Fig.4 gives the cathode and anode polarization in the temperature range 0 to 80°C (a - in a 1 N solution of H_2SO_4, б - in a 1 N solution of HCl). The following conclusions are arrived at:

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1. Increase of the temperature of 1 N solutions of sulphuric acid and hydrochloric acid is accompanied by an increase in the corrosion speed of Armco iron which is fully in accordance with the Arrhenius equation; the process is governed by the speed of the chemical reaction.
2. An increase in the temperature leads to a shift in the potentials of the Armco iron in both acids towards negative values. A slight smoothing out of the potentials at elevated temperatures is explained by an intensification of the effect of corrosion on the surface of the metal and by baring of cathode inclusions.
3. An increase in the temperature facilitates both electrode processes to approximately the same extent.
There are 4 figures, 2 tables and 10 references: 9 Soviet and 1 non-Soviet.

ASSOCIATION: Kafedra khimii, Voronezhskiy pedagogicheskiy institut
(Chemistry Chair, Voronezh Pedagogic Institute)

SUBMITTED: September 8, 1959

Card 4/6

KHITROV, V.A.; SHATALOVA, V.I.

Effect of temperature on the corrosion resistance of aluminum in acids. Zhur. prikl. khim. 34 no.5:1163-1164 My '61. (MIRA 16:8)

(Aluminum--Corrosion)

KHITROV, V.A.; SHATALOVA, V.I.

Kinetics of electrode processes on a chemically pure and commercial tin in sulfuric and hydrochloric acid solutions at various temperatures. Zhur.prikl.khim. 34 no.9:2106-2110 S '61. (MIRA 14:9)

1. Voronezhskiy Pedagogicheskiy institut.
(Electrodes, Tin)

SHATALOVA, V.I.; KNITROV, V.A.

Temperature effect on the corrosion resistance and electrode potentials of metals in acid media. Part 1: Iron.
Izv.vys.ucheb.zav.;khim.i khim.tekh. 4 no.3:404-408 '61.
(MIRA 14:10)

1. Voronezhskiy pedagogicheskiy institut, kafedra khimii.
(Iron--Corrosion)
(Electromotive force)

BALEZIN, S.A.; KHITROV, V.A.

Let's improve the training of chemistry teachers. Khim. v shkole 16 no.4:94-95 Jl-Ag '61. (MIRA 14:8)
(Chemistry--Study and teaching)
(Teachers, Training of)

SMOL'YANINOV, I.S.; KHITROV, V.A.

Effect of the temperature on the corrosion resistance and electrode potentials of metals in acidic media. Part 7: Lead in a hydrochloric acid solution. Izv.vys.ucheb.zav.;khim. i khim.tekh. 5 no.3:413-417 '62. (MIRA 15:7)

1. Voronezhskiy gosudarstvennyy pedagogicheskiy institut, kafedra khimii.
(Lead--Corrosion) (Electromotive force)

S/137/62/000/012/060/085
A006/A101

AUTHORS: Khitrov, V. A., Dugin, N. A., Khmel'kov, V. F.

TITLE: The effect of temperature upon the corrosion of low-carbon steel in acid inhibited media

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1962, 116, abstract 12I720 ("Vestn. tekhn. i ekon. inform. N.-i. in-t tekhn.-ekon. issled. Gos. kom-ta Sov. Min. SSSR, po khimii", 1962, no. 4, 33 - 36)

TEXT: The authors studied the effect of temperature upon corrosion resistance of low-carbon steels in acid inhibited media and upon the magnitude of electrode potentials. Grade "08" steel was investigated in 1 n. and 7 n. H_2SO_4 and HCl at 0, 20, 40, 60, and 80°C. Urotropine, formaldehyde and Na arsenate were employed as inhibitors. With higher temperatures the Na arsenate in H_2SO_4 and HCl solutions inhibits very strongly the course of both electrode processes, whereas the effectiveness of formadehyde and urotropine is reduced.

[Abstracter's note: Complete translation] N. Lukashina

Card 1/1

KHITROV, V.A.; SMOL'YANINOV, I.S.; SHATALOVA, V.I.; SADOVSKAYA, Yu.I.

Effect of temperature on the corrosion resistance of some metals in sulfuric and hydrochloric acid solutions of various concentrations. Zhur.fiz.khim. 36 no.5:1058-1060 My '62.
(MIRA 15:8)

1. Voronezhskiy gosudarstvennyy pedagogicheskiy institut.
(Metals--Corrosion)

KHITOV, V.A., agronom

Agrochemical laboratory for each farm. Zemledelie 24 no.8:75 Ag '62. (MIRA 15:9)

1. Kolkhoz imeni XX parts"yezda, Buzulukskogo rayona, Orenburgskoy oblasti.
(Soils—Analysis)

KHITROV, V.A.; SHATALOVA, V.I.

Effect of temperature on the corrosion resistance of tin in acid media. TSvet. met. 35 no.11:95-96 N '62. (MIRA 15:11)
(Tin--Corrosion)
(Metals, Effect of temperature on)

S/153/62/005/006/005/015
E071/E333

AUTHOR: Khitrov, V.A.

TITLE: ~~Regularities~~ in the influence of temperature on the corrosion behavior of metals in acid media

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Khimiya i khimicheskaya tekhnologiya, v. 5, no. 6, 1962, 920-928

TEXT: Main types of deviations from the linear of the Van't Hoff-Arrhenius relationship log K = f(1/T) (where K - velocity constant of the corrosion process, T - absolute temperature) were surveyed and the causes of these deviations analyzed. The influence of concentration of acids on the above temperature relationship could be explained by the following main causes: an intensification of the aggressive action of acid anions on the film covering a metal (aluminum in hydrochloric-acid solutions); appearance in acids of new functions, e.g. oxidizing (aluminum in sulfuric-acid solutions); intensification of processes of formation of complexes (copper in hydrochloric-acid solutions); the formation of a film of a new composition with some new properties (nickel in sulfuric-acid solutions); screening of the

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Regularities in ....

S/153/62/005/006/005/015
E071/E333

surface of metal with hydrogen bubbles (tin in hydrochloric-acid solutions). The influence of temperature, anionic composition and concentration of acids on the value of the effective energy of activation and temperature coefficients of metal corrosion was investigated. The observed behavior of some metals in acid media is explained by the relative importance of diffusion and chemical factors in the corrosion process. There are 2 figures and 2 tables.

ASSOCIATION: Kafedra khimii, Voronezhskiy gosudarstvennyy pedagogicheskiy institut
(Department of Chemistry, Voronezh State Pedagogic Institute)

SUBMITTED: September 29, 1961

Card 2/2

SMOL'YANINOV, I.S.; KHITROV, V.A.

Effect of temperature on the corrosion resistance and on the electrode potentials of metals in acid media. Part 4: Copper in sulfuric acid solutions. Izv.vys.ucheb.zav.,khim.i khim.tekh. 6 no.1:63-67 '63. (MIRA 16:6)

1. Voronezhskiy pedagogicheskiy institut, kafedra khimii.
(Copper--Corrosion) (Electromotive force)

KHITROV, V.A.; SMOL'YANINOV, I.S.

Effect of temperature on the corrosion resistance and electrode potentials of metals in acid media. Part 3. Zhur. fiz. khim. 37.no.11:2391-2396 N '63. (MIRA 17:2)

1. Voronezhskiy pedagogicheskiy institut.

KHITROY, V.A.; SMOL'YANINOV, I.S.

Effect of temperature on the corrosion resistance and electrode potentials of metals in acid media. Part 5: Copper in hydrochloric acid solutions. Izv.vys.ucheb.zav.;khim. i khim. tekh. 7 no. 1:51-55 '64. (MIRA 17:5)

1. Voronezhskiy pedagogicheskiy institut, kafedra khimii.

ACCESSION NR: AP4034716 S/0064/64/000/004/0307/0310

AUTHOR: Khitrov, V. A.; Zadorozhny*y, V. P.; Smol'yaninov, I. S.; Zhukova, G. P.; Dugin, N. A.; Konyayev, B. Ya.

TITLE: Use of bottoms from SK production as acid corrosion inhibitors.

SOURCE: Khimicheskaya promy*shlennost', no. 4, 1964, 307-310

TOPIC TAGS: corrosion inhibitor, rubber production byproduct, still bottom, SK rubber production, saturated alcohol, unsaturated alcohol, saturated hydrocarbon, unsaturated hydrocarbon, unpolymerisable hydrocarbon, acid corrosion inhibitor, inhibition mechanism, chemosorption

ABSTRACT: The effectiveness of various cuts of still bottoms from rubber production as acid corrosion inhibitors for steels and copper was investigated. Three mixtures were examined: (1) foam reagents (PR) obtained from still bottoms remaining after distillation of technical butanol and comprising 25-35% saturated and unsaturated C_6 and C_8 alcohols, 3-5% butanol, 25-30% hydrocarbons, 30-35% heavy ends and traces of phenols and aldehydes; (2) still bottoms (KO) comprising low boiling saturated and unsaturated hydrocarbons separated from divinyl (35-45C

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ACCESSION NR: AP4034716 APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722020013

fraction contained to 40% amylene and piperazine; 65-80C fraction contained to 70% hexylene and hexadiene and small amounts of benzene, toluene, hexene; (3) motor fuel (MT) comprising a mixture of unpolymerisable hydrocarbons from washed still bottoms. The corrosion inhibiting effects of these products were tested at 0-80C as follows: PR, corrosion of low carbon steel 08 in 1 and 7N HCl and H_2SO_4; PR and KO, corrosion of stainless steel 1Kh18N9T in 1 and 7N HCl, and PR, KO and MT, corrosion of copper in 3N HNO_3. PR effectively retarded corrosion of steel in H_2SO_4 and HCl and of copper in HNO_3. Addition of 0.1 wt.% KI increased the effectiveness (at 80C, by over 2000 times). 2.5% PR plus 0.5% sodium arsenite almost completely prevented corrosion of 08 steel at 80C in 1N HCl. PR almost prevented corrosion of the stainless steel in 1N HCl and retarded corrosion in 3N HCl; corrosion in 7N HCl was very rapid after 6-7 hours. It is suggested the inhibition mechanism involves chemosorption of the PR components on the metal surface. PR and KO inhibited corrosion of copper in HNO_3 below 20C; MT was not especially effective. Orig. art. has: 3 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00

Card 2/3

SHATALOVA, V.I.; KHITROV, V.A.

Effect of temperature on the corrosion resistance and electrode potentials of metals in acid media. Part 8. Nikel. Inv.Vor.gos.ped.inst. 47:46-56 '64.

(MIRA 18:11)

KHITROV, V.A.; SMOL'YANINOV, I.S.

Effect of temperature on the corrosion resistance and electrode potentials of metals in acid media. Part 9: Cadmium. Izv.Vor.gos.ped.inst. 47:57-66 '64.

(MIRA 18:11)

ZHUKOVA, G.P.; KHITROV, V.A.

Kinetics of the self-dissolution of 1Kh18N9T stainless steel in hydrochloric acid solutions. Izv.Vor.gos.ped. inst. 47:67-71 '64. (MIRA 18:11)

KHITROV, V.A.; ZADOROZHNYY, V.P.; SMOL'YANINOV, I.S.; SHATALOVA, V.I.; DUGIN, N.A.

Activation energy and temperature dependence of the rate of the corrosion of metals dissolving in nonoxidizing acids. Izv.Vor.gos.ped.inst. 47:78-90 '64.

(MIRA 18:11)

KHITROV, V.A.; KHMEL'KOV, V.F.

Equipment to study the kinetics of the corrosion process by the thermographic method. Izv.Vor.gos.ped.inst. 47:96-102 '64. (MIRA 18:11)

ZADOROZHNYY, V.P.; KHITROV, V.A.

Improved automatic hydrogen corrosion meter. Izv.Vuz.gaz.ped.inst. 47:105-108 '64. (MIRA 18:11)

KHITROV, V.A.; DUGIN, N.A.

Potassium iodide and compositions on its basis as retarders of steel corrosion in sulfuric acid solutions at 0 - 80° temperatures. Izv.Vor.gos.ped.inst. 47:109-122 '64.
(MIRA 18:11)

KHITROV, V.A.; ZADOROZHNYY, V.P.; DUGIN, N.A.

Corrosive and electrochemical behavior of low-carbon steel in solutions of sulfuric and hydrochloric acids of various concentrations at temperatures of from 0 to 80°. Izv.Vor. gos.ped.inst. 47:5-17 '64.

(MIRA 18:11)

SMOL'YANINOV, I.S.; KHITROV, V.A.; KONYAYEV, B.Ya.

Wastes from the production of synthetic rubber as retarders of copper corrosion in nitric acid. Izv.Vor.gos.ped.inst. 47:143-147 '64. (MIRA 18:11)

ACC NR: AP7008670 SOURCE CODE: UR/0153/66/009/006/0980/0984

AUTHOR: Khitrov, V. A.; Zhukova, G. P.

ORG: Chemistry Department, Voronezh State Pedagogical Institute (Kafedra khimii, Voronezhskiy gosudarstvennyy pedagogicheskiy institut)

TITLE: Inhibition of corrosion of 1Kh18N9T stainless steel in hydrochloric acid solutions by admixtures of "penoreagent"

SOURCE: IVUZ. Khimiya i khimicheskaya tekhnologiya, v. 9, no. 6, 1966, 980-984

TOPIC TAGS: corrosion inhibitor, hydrochloric acid, corrosion rate

ABSTRACT: The aim of the work was to determine the corrosion and electrochemical characteristics of 1Kh18N9T steel in HCl solutions of various concentrations at 20-80°C, and to try to increase the corrosion resistance of the steel by introducing "penoreagent" (PR), one of the waste products in the production of synthetic rubber. The composition of PR includes alcohols (hexanol, octyl alcohol and C_6 and C_8 unsaturated alcohols), higher aldehydes (caproaldehyde and capryl aldehyde), butyl alcohol, certain hydrocarbons, tars, etc. Gravimetric and photocolorimetric tests showed 1Kh18N9T steel to be attacked in HCl solutions, and more so at higher temperatures. At low acid concentrations, pitting corrosion occurs. At the boiling point, the corrosion is uniform. At all electrolyte concentrations and temperatures, nickel and chromium ions pass into solution in much greater quantities than iron, apparently

Card 1/2 UDC: 620.197.3

ACC NR: AP7008670

because of the diffusion of ions in the steel solid solution. Values of the effective activation energy calculated from the corrosion data and temperature coefficients of the steel lead to the conclusion that the controlling step of the process is chemical. PR was found to be an effective inhibitor of pitting corrosion for 1Kh18N9T steel. The introduction of PR decreases the effective activation energy, apparently because of the formation of a protective film and adsorption of PR on the metal surface. Orig. art. has: 3 figures and 3 tables.

SUB CODE: 11,13/ SUBM DATE: 01Feb65/ ORIG REF: 007

Card 2/2

KHITROV, V. G.

"Spectral Analysis of Ores by a Method Involving the Blowing of Powered Samples With Air Into the Arc Discharge," by A. K. Rusanov and V. G. Khitrov, All-Union Institute of Mineral Raw Materials, Zavodskaya Laboratoriya, Vol 23, No 2, Feb 57, pp 175-181

A method of spectral analysis which involves blowing the sample to be analyzed into the arc discharge rather than evaporating it from a groove in the electrode is described. According to the results reported, the modification which has been introduced increases the sensitivity of the quantitative determination by spectral analysis and reduces the error in determining concentrations. Data on the sensitivities of the determination of a number of elements including Cd, Bi, Ge, Be, Zr, Y, La, Nb, U, and Th are listed. It is stated that the method described, by improving the stability of the radiation emitted, facilitates photoelectric recording of spectrum lines and creates conditions under which automatization of spectral analysis can be achieved. (C)

KHITROV, V.; Rusanov, A.

A horizontal arc with air blow as a source of excitation of the spectrum of powdered substances. In Russian. p. 369.

CHEMIA ANALITYCZNA. (Komisja Analityczana Polaskiej Akademii Nauk i Naczelan Organizacja Techniczna) Warszawa, Poland; Vol. 3, no. 3/4 1958

Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 7, July 1959 Uncl.

Khitrov, V.G.

24(7) PHASE I BOOK EXPLOITATION SOV/1700

Lvov. Universitet

Materialy X Vsesoyuznogo soveshchaniya po spektroskopii, 1956. t. II: Atomnaya spektroskopiya (Materials of the 10th All-Union Conference on Spectroscopy, 1956. Vol 2: Atomic Spectroscopy) [Lvov] Izd-vo L'vovskogo univ., 1958. 568 p. (Series: Its: Fizicheskiy sbornik, vyp. 4(9)) 3,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po spektroskopii.

Editorial Board: G.S. Landsberg, Academician, (Resp. Ed.); B.S. Neporent, Doctor of Physical and Mathematical Sciences; I.L. Fabelinskiy, Doctor of Physical and Mathematical Sciences; V.A. Fabrikant, Doctor of Physical and Mathematical Sciences; V.G. Koritskiy, Candidate of Technical Sciences; S.M. Rayskiy, Candidate of Physical and Technical Sciences; L.K. Klimovskaya, Candidate of Physical and Mathematical Sciences; V.S. Miliyanchuk (Deceased), Doctor of Physical and Mathematical Sciences; A.Ye. Glauberman, Doctor of Physical and Mathematical Sciences; Ed.: S.L. Gazer; Tech. Ed.: T.V. Saranyuk.

PURPOSE: This book is intended for scientists and researchers in the field of spectroscopy, as well as for technical personnel using spectrum analysis in various industries.

COVERAGE: This volume contains 177 scientific and technical studies of atomic spectrography presented at the 10th All-Union Conference on Spectroscopy in 1956. The studies were carried out by members of scientific and technical institutes and include extensive bibliographies of Soviet and other sources. The studies cover many phases of spectroscopy: spectra of rare earths, electromagnetic radiation, physicochemical methods for controlling uranium production, physics and technology of gas discharge, optics and spectroscopy, abnormal dispersion in metal vapors, spectroscopy and the combustion theory, spectrum analysis of ores and minerals, photographic methods for quantitative spectrum analysis of metals and alloys, spectral determination of the hydrogen content of metals by means of isotopes, tables, and atlases of spectral lines, spark spectrographic analysis, statistical study of variation in the parameters of calibration curves, determination of traces of metals, spectrum analysis in metallurgy, thermochemistry in metallurgy, and principles and practice of spectrochemical analysis.

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Materials of the 10th All-Union Conference (Cont.) SOV/1700

Card 8/31

S/007/60/000/005/002/002
B002/B060

AUTHORS: Stavrov, O. D., Khitrov, V. G.

TITLE: Boron in Rocks and Pegmatites of the Eastern Sayan

PERIODICAL: Geokhimiya, 1960, No. 5, pp. 405 - 413

TEXT: A new emission-spectrographic method was worked out for the determination of small boron contents in rocks and minerals. The intensity of the boron line B I 2497.73 A is compared with the SiO bands 2498.10, 2497.73, and 2497.56 A. Figs. 1 and 2 show the microphotometric curves of the spectra, taken with an МФ-4 (MF-4) instrument. The sample was blown into a light arc with an АВР-2 (AVR-2) apparatus. Copper electrodes were used for this purpose. The precise determination conditions are listed in Table 1. A calibration curve (Fig. 3) was drawn for the determinations. Figs. 4,5, and 6 show the photometric curves of the spectrograms in the case of boron contents between 1 and 4.5 ppm. It is stated that further 0.4 to 0.8 ppm of boron can be determined by this method. The following rocks were examined: intrusive rocks of the Lower Proterozoic in the Bol'sheyerminskiy massif and granites at River Tikhaya,

Card 1/3

as well as post-Proterozoic intrusive rocks of the Zimovninskiy granodiorite massif (Table 2), moreover, adjacent gneisses and schists (Table 3). As compared to the rocks of the Upper Proterozoic, the intrusive rocks of the Lower Proterozoic and the adjacent archaic gneisses exhibit a strongly reduced boron content; this property can be made use of to distinguish among archaic complexes. The boron contents of the various constituents were determined in a medium-grained biotite-granodiorite from the Zimovninskiy granodiorite massif (Table 4). 96% of boron is bound to feldspars. Also quartz, however, contains boron in small quantities. This is shown in the compilation of Table 6: quartzes from tourmaline-containing pegmatites contain up to 0.4 ppm of B. An investigation of boron-containing pegmatites and their secondary rocks revealed (Table 5) that boron largely passes into the adjacent rocks. It is pointed out that the mother rocks of tourmaline-containing pegmatites have a higher boron content. Papers by A. P. Vinogradov and V. L. Barsukov are mentioned. There are 6 figures, 6 tables, and 10 references: 9 Soviet and 1 British.

Boron in Rocks and Pegmatites of the Eastern Sayan

S/007/60/000/005/002/002
B002/B060

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya, Moskva (All-Union Scientific Research Institute of Mineral Raw Materials, Moscow)

SUBMITTED: March 14, 1960

Card 3/3

GERASIMOVSKIY, V.I.; KHITROV, V.G.

Geochemistry of boron in nepheline syenites of the Lovozero Massif
Geokhimiia no.6:535-537 '61. (MIRA 14:6)

1. Institut geokhimii i analiticheskoy khimii imeni V.I.Vernadskogo AN SSSR i Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya, Moskva.
(Lovozero Tundras--Nepheline syenite)
(Boron)

KHITROV, V.G.; RUSANOV, A.K.

Rapid spectrographic determination of germanium in iron oxide ores. Zav.lab. 27 no.7:849-851 '61. (MIRA 14:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya.
(Germanium--Spectra) (Iron ores--Analysis)

STAVROV, O.D.; KHITROV, V.G.

Possible geochemical relationship between cesium and boron [with summary in English]. Geokhimiia no.1:53-61 '62. (MIRA 15:2)

1. All-Union Institute of Mineral Raw Materials, Moscow.
(Cesium) (Boron)

LISITSYN, A.Ye.; KHITROV, V.G.

Distribution of boron in minerals of some igneous and metamorphic rocks in the Central Urals based on the microspectroscopic analysis. Geokhimiia no.3:259-268 '62. (MIRA 15:4)

1. All-Union Scientific Research Institute of Mineral Raw Material, Moscow.
(Ural Mountains--Boron)

S/075/62/017/007/001/006
B119/B186

AUTHORS: Rusanov, A. K., Alekseyeva, V. M., Il'yasova, N. V., and Khitrov, V. G.

TITLE: Spectrographic quantitative determination of small concentrations of rare earths in rocks and minerals

PERIODICAL: Zhurnal analiticheskoy khimii, v. 17, no. 7, 1962, 809 - 819

TEXT: A direct simultaneous determination of rare earths in ores was made using a ДФС-13 (DFS-13) diffraction spectrograph having a dispersion of 4 - 2 Å/mm. The spectrum was excited by evaporating the powder sample, mixed with buffer mixture, in a carbon arc discharge. Otherwise, the procedure followed the traditional spectrographic method. The standard experimental error of the method is 15%. The sensitivity of determination is 0.001% for Yb, 0.003% for Tu and Y, 0.005% for La, 0.01% for Nd, 0.03% for Pr, Gd, Dy, and Lu, 0.04% for Ce, 0.05% for Sm, Eu, Tb, Ho, and Er. The sensitivity can be increased to the 30 - 100 times by a simple chemical enrichment of the samples with rare earths. In the original paper the analytic spectrum lines of the rare earths and of the disturbing elements

Spectrographic quantitative determination...

were tabulated on 5 pages. There are 3 figures and 4 tables. The most important English-language reference is: J. A. Norris, C. E. Repper, Analyt. Chem. 24, 1399 (1952).

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya, Moskva (All-Union Scientific Research Institute of Mineral Raw Materials, Moscow)

SUBMITTED: December 30, 1961

Card 2/2

KHITROV, V.N.

KHITROV, V.N.; KOVALEV, V.F.

Our experience in the use of dry plaster. Torf.prom.32 no.5: 22-24 '55. (MLRA 8:10)

1. Stroitel'noye upravleniye Tesovo.
(Plastering)